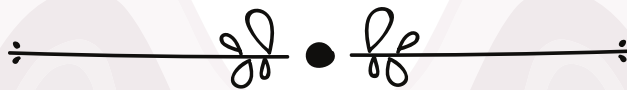


BIOHACK NOTES



# CHEMICAL CONTROL AND INTEGRATION

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



**PARTH** GOYAL





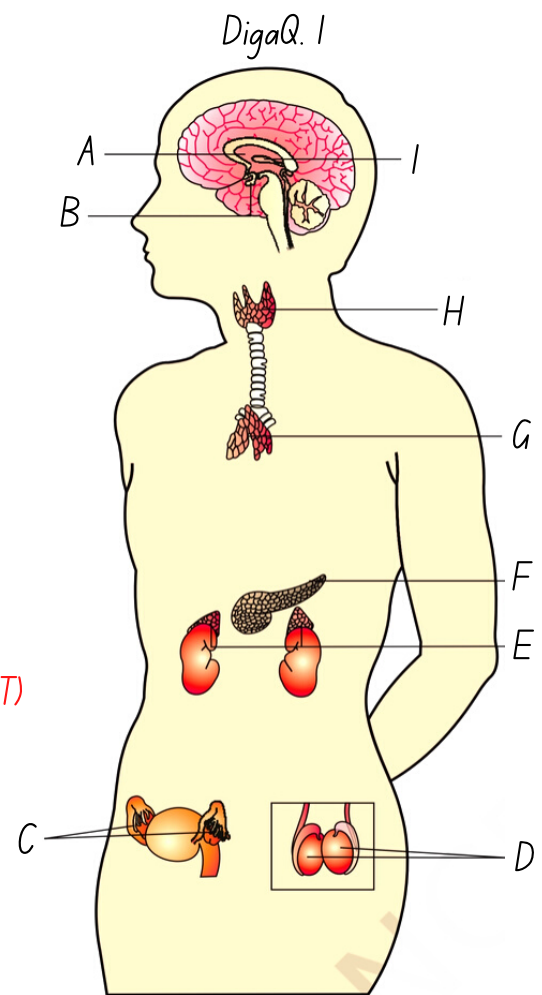
## • INTRODUCTION

1. Define hormones. (NEET)
2. Liver don't produce hormones. T/F (NEET)



## • HYPOTHALAMUS

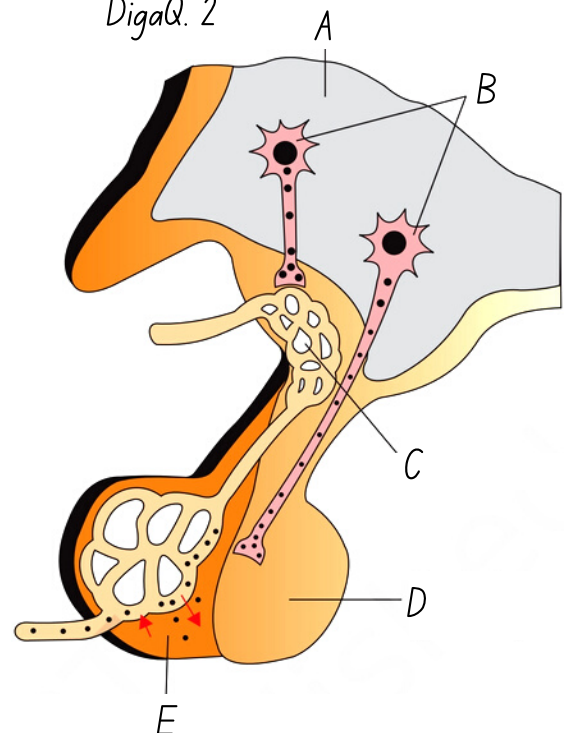
3. Somatostatin is released from hypothalamus. T/F
4. Hypothalamic hormones reach the pituitary gland through \_\_\_\_\_ (NEET)
5. \_\_\_\_\_ is under direct neural regulation of hypothalamus. (NEET)
6. \_\_\_\_\_ is called master of master gland.
7. Hormones released from hypothalamus are - (9)



## • PITUITARY GLAND

8. Pituitary gland is located in a body cavity called \_\_\_\_\_
9. Pituitary gland is divided into (2) - (NEET)
10. Adenohypophysis is divided into - (2)
11. Pars distalis secrete - (6) (NEET)
12. MSH is secreted by \_\_\_\_\_ (NEET)
13. In humans, pars intermedia is well separated from pars distalis. T/F
14. Neurohypophysis is also called \_\_\_\_\_ store \_\_\_\_\_ and \_\_\_\_\_ hormones. (NEET)
15. Oversecretion of GH cause \_\_\_\_\_
16. Low secretion of GH cause \_\_\_\_\_
17. Excess GH secretion in \_\_\_\_\_ cause acromegaly.
18. Acromegaly can cause premature death. T/F
19. \_\_\_\_\_ regulate growth of mammary glands and formation of milk in them. (NEET)
20. ACTH stimulates secretion of adrenaline. T/F
21. LH fxn in males is - (NEET)
22. \_\_\_\_\_ and \_\_\_\_\_ regulate spermatogenesis.
23. LH fxn in female - (2)

DigaQ. 2



24. FSH fxn in female -

25. MSH act on \_\_\_\_\_

26. Oxytocin acts on smooth muscles of our body and causes relaxation. T/F (NEET)

27. Fxns of oxytocin (2) - (NEET)

28. Fxn of vasopressin - (NEET)

29. Deficiency of ADH cause - (NEET)



## • PINEAL GLAND

30. It is located on the ventral/dorsal side of forebrain. (NEET)

31. Pineal gland secrete a hormone called \_\_\_\_\_ (NEET)

32. Melatonin function is -

33. Melatonin maintains normal rhythms of body temperature. T/F

34. Melatonin also influence (4) -



## • THYROID GLAND

35. The thyroid lobes are connected by -

36. Thyroid gland is composed of (2) -

37. T<sub>4</sub> other 2 names are - (2)

38. \_\_\_\_\_ is essential for normal rate of hormone synthesis on the thyroid.

39. Hypothyroidism cause enlargement of thyroid gland, commonly called - (NEET)

40. Hypothyroidism during pregnancy can cause \_\_\_\_\_ in a child. (NEET)

41. Symptoms of cretinism are - (5) (NEET)

42. In adult women, \_\_\_\_\_ can cause the menstrual cycle to become irregular.

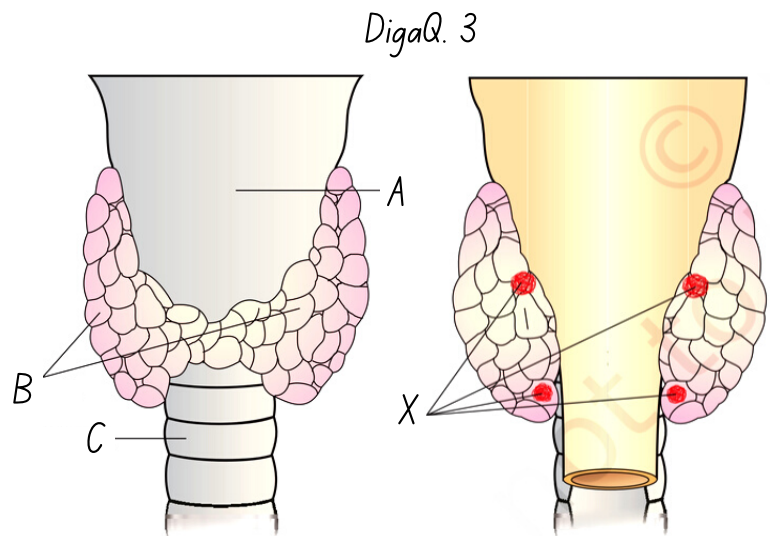
43. Exophthalmic goitre is also called \_\_\_\_\_ and is characterised by (4) - (NEET)

44. Grave disease is a type of hypo/hyperthyroidism.

45. Thyroid hormones functions are (7) -

46. \_\_\_\_\_ secreted by thyroid gland regulate blood calcium levels.

47. TCT is a peptide hormone. T/F





## • PARATHYROID GLAND

48. Humans have \_\_\_\_ no. of parathyroid gland.
49. PTH is a peptide/protein hormone. (NEET)
50. PTH decreases blood calcium levels. T/F (NEET)
51. Name the 3 targets of PTH and action on them.



## • THYMUS

52. Thymus is located above sternum. T/F
53. Exact thymus location is -
54. Thymus release a peptide/protein hormone called \_\_\_\_\_ (NEET)
55. Thymosins plays a major role in \_\_\_\_\_ (NEET)
56. Thymosin have no role in production of antibodies. T/F
57. Thymus is degenerated in old individuals. T/F (NEET)



## • ADRENAL GLAND

58. Adrenal glands are present in the posterior part of the kidney. T/F
59. Underproduction of hormones by adrenal cortex cause \_\_\_\_\_

60. Symptoms of Addison disease is (3) -

61. Catecholamines include (2) - (NEET)

62. Effects of catecholamines are - (4)

63. Functions of catecholamines are - (6)

64. The 3 layers of adrenal cortex are (from outer to inner) -

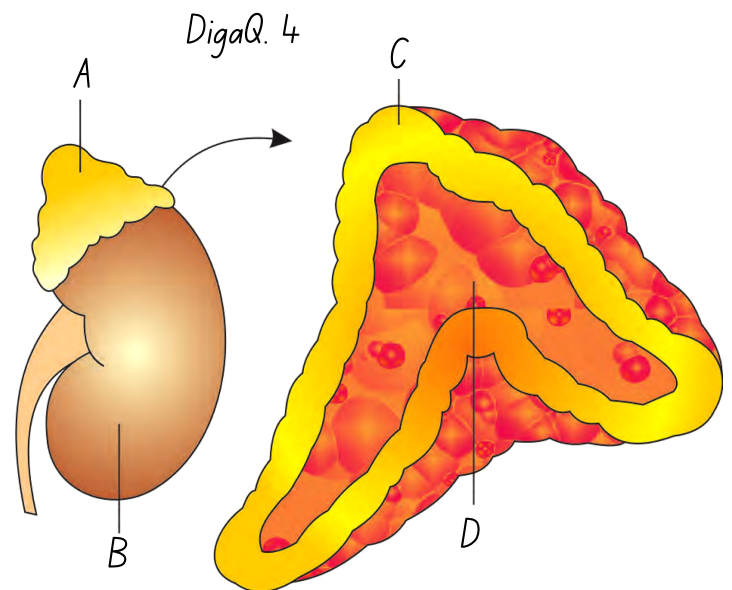
65. Name the hormones which each of the layers secretes -

66. Cortisol functions are (9) - (NEET)

67. Aldosterone function is reabsorption of \_\_\_\_ and \_\_\_\_ & excretion of \_\_\_\_ and \_\_\_\_

68. Aldosterone fxn is (4) -

69. Androgens from zona \_\_\_\_\_ functions are (3) -





## • PANCREAS

70. Endocrine pancreas consists of \_\_\_\_\_
71. About \_\_\_\_ million of Islets of Langerhans are present in a normal human pancreas, which represent only \_\_\_\_ % of pancreatic tissue.
72. Two types of cells in Islets of Langerhans are -
73. Glucagon is a peptide/protein hormone.
74. Glucagon act on \_\_\_\_\_ and stimulate - (2) (NEET)
75. Insulin is a peptide/protein hormone.
76. Insulin act on \_\_\_\_\_ and \_\_\_\_\_ (NEET)
77. Glycogenesis is stimulated by -
78. Harmful compounds like \_\_\_\_\_ form in diabetes mellitus.



## • TESTIS

79. Testis dual functions are -
80. Testis is composed of \_\_\_\_\_ and \_\_\_\_\_
81. Leydig cells are also called \_\_\_\_\_ cells.
82. \_\_\_\_\_ help in muscular growth.
83. Major stimulatory role in the process of spermatogenesis is played by -
84. Androgen has a catabolic effect on protein and carbohydrate. T/F
85. Androgen doesn't influence libido. T/F



## • OVARY

86. Ovary produces two hormones, namely -
87. Ovary is composed of - (2)
88. The estrogen is synthesised mainly by growing follicles. T/F
89. Corpus luteum secrete \_\_\_\_\_ (NEET)
90. \_\_\_\_\_ supports pregnancy.
91. Progesterone functions (3)





## • HORMONES OF OTHER ORGANS

92. Heart secrete \_\_\_\_\_ which increase/decrease BP. (NEET)

93. ANF cause \_\_\_\_\_

94. \_\_\_\_\_ cells of kidney produce a protein/peptide hormone called \_\_\_\_\_ which stimulate RBC production.

95. GI 4 main peptide/protein hormones are -

96. First discovered hormone was -

97. Gastrin act on \_\_\_\_\_ and stimulate secretion of -

98. Secretin act on \_\_\_\_\_ and stimulate secretion of -

99. CCK act on \_\_\_\_\_ and \_\_\_\_\_ and stimulate secretion of -

100. GLP act on \_\_\_\_\_ and fxn -

101. Several other non-endocrine tissues secrete hormones called \_\_\_\_\_

102. \_\_\_\_\_ are essential for repairing tissue.

103. Name all the hormones that help in erythropoiesis (4) -



## • MECHANISM OF HORMONE ACTION

104. Steroids hormones ex are - (4) (NEET)

105. Epinephrine is \_\_\_\_\_ derivative. (NEET)

106. Iodothyronine crosses the membrane easily. T/F

107. Secondary messengers ex (3) -

108.  $IP_3$  full form is -





# CHEMICAL CONTROL AND INTEGRATION



PARTH GOYAL



# ANSWERS

## • INTRODUCTION

1. Hormones are non-nutrient chemicals which act as intercellular messengers and are produced in trace amounts.

2. False

## • HYPOTHALAMUS

3. True

4. Hypothalamo-hypophyseal portal system

5. Posterior pituitary

6. Hypothalamus

7. TRH, GHRH, GHIH, GnRH, PRH, PIH, CRH, MRH, MIH

## • PITUITARY GLAND

8. Sella tursica

9. Adenohypophysis and neurohypophysis

10. Pars distalis and pars intermedia

11. LH, FSH, PRL, ACTH, GH, TSH

12. Pars intermedia

13. F

14. Pars nervosa, oxytocin and vasopressin

15. Gigantism

16. Dwarfism

17. Adults

18. T

19. Prolactin

20. False

21. stimulates the synthesis and secretion of hormones called androgens

22. FSH and androgens

23. induces ovulation of graafian follicles and maintains the corpus luteum

24. stimulates growth and development of the ovarian follicles

25. Melanocytes

26. False, it cause contraction

27. stimulates vigorous contraction of uterus at the time of child birth, milk ejection from the mammary gland.

28. Stimulate reabsorption of water and electrolyte at DCT

29. Diabetes insipidus

## • PINEAL GLAND

30. Dorsal

31. Melatonin

32. regulation of a 24-hour (diurnal) rhythm of our body

33. T

34. metabolism, pigmentation, menstrual cycle, defense capability

## • THYROID GLAND

35. Isthmus

36. follicles and stromal tissues

37. tetraiodothyronine, thyroxine

38. Iodine

39. Goitre

40. Cretinism

41. mental retardation, low intelligence quotient, abnormal skin, deaf-mutism, stunted growth

42. Hypothyroidism

43. Graves disease, characteristics - enlargement of thyroid gland, protrusion of eyeball, increased BMR, weight loss

44. Hyperthyroidism

45. Regulation of BMR, red blood cell formation, metabolism of carbohydrates, proteins and fats, Maintenance of water and electrolyte balance

46. TCT

47. F



**PARTH GOYAL**



## • PARATHYROID GLAND

48. 4

49. Peptide

50. F

51. 3 targets - Kidney, intestine, bones | Work - stimulates reabsorption of Ca from renal tubules, increased Ca absorption from intestines and stimulate bone resorption

## • THYMUS

52. False

53. located between lungs behind sternum on the ventral side of aorta

54. Peptide, thymosins

55. differentiation of T-lymphocytes

56. F

57. T

## • ADRENAL GLAND

58. F

59. Addison disease

60. Low blood sugar, low plasma Na<sup>+</sup>, high plasma K<sup>+</sup>, weakness, fatigue

61. Adrenaline and nor-adrenaline

62. increase alertness, pupillary dilation, piloerection (raising of hairs), sweating

63. Increase heart beat, the strength of heart contraction and the rate of respiration, stimulate breakdown of glycogen, protein and lipids

64. Zona glomerulosa, zona fasciculata, zona reticularis (Trick to Remember - GFR - glomerulosa, fasciculata, reticularis)

65. Mineralocorticoid - eg. Aldosterone, Glucocorticoid - eg. Cortisol, Cortisone, corticosterone, Sex corticoid - eg. Androstenedione, dehydroepiandrosterone and estrogens (from outer to inner)

66. Gluconeogenesis, lipolysis, proteolysis, inhibit cellular uptake and utilisation of amino acids. maintaining the cardio-vascular system and kidney functions, anti-inflammatory reactions, suppresses immune response, stimulates RBC production

67. Na<sup>+</sup> and water, K<sup>+</sup> and phosphate

68. Maintenance of electrolytes, body fluid volume, osmotic pressure and blood pressure

69. Reticularis, fxns - growth of axial hair, pubic hair and facial hair

## • PANCREAS

70. Islets of Langerhans

71. 1-2, 1-2

72. Alpha and beta cell

73. Peptide

74. Hepatocytes, stimulate glycogenolysis and gluconeogenesis

75. Peptide

76. Hepatocytes and adipocytes

77. Insulin

78. Ketone

## • TESTIS

79. As primary sex organ and as endocrine gland

80. seminiferous tubules and Leydig cells

81. Interstitial tissue

82. Androgens

83. Androgens

84. F

85. F

## • OVARY

86. Estrogen and progesterone

87. Ovarian follicles and stromal tissues

88. T



**PARTH GOYAL**

89. Progesterone

90. Progesterone

91. supports pregnancy, stimulates the formation of alveoli (sac-like structures which store milk), milk secretion

### • HORMONES OF OTHER ORGANS

92. ANF, decrease

93. Vasodilation

94. JG, peptide, erythropoietin

95. Peptide, gastrin, secretin, cholecystokinin (CCK) and gastric inhibitory peptide (GIP)

96. Secretin

97. Gastric glands, HCl and pepsinogen

98. exocrine pancreas, water and bicarbonate ions

99. pancreas and gall bladder, pancreatic enzymes and bile juice, respectively

100. Stomach, inhibits gastric secretion and motility

101. Growth factors

102. Growth factors

103. Cortisol, testosterone, thyroxine, erythropoietin

### • MECHANISM OF HORMONE ACTION

104. cortisol, testosterone, estradiol & progesterone

105. Amino-acid

106. T

107. AMP,  $IP_3$ ,  $Ca^{++}$

108. Inositol Triphosphate

### • DigaQs

DigaQ. 1 - Location of endocrine glands

A - Hypothalamus

F - Pancreas

B - Pituitary

G - Thymus

C - Ovary (in female)

H - Thyroid and

D - Testis (in male)

Parathyroid

E - Adrenal

I - Pineal

DigaQ. 2 - Pituitary and its relationship with hypothalamus

C - Portal circulation

A - Hypothalamus

D - Posterior pituitary

B - Hypothalamic neurons

E - Anterior pituitary

DigaQ. 3 - Thyroid and Parathyroid

A - Vocal cord

C - Trachea

B - Thyroid

X - Parathyroid gland

DigaQ. 4 - Adrenal gland above kidney

A - Adrenal gland

B - Kidney

C - Adrenal cortex

D - Adrenal medulla



SCAN AND DONATE US SO THAT WE  
CAN CREATE MORE SUCH QUALITY  
CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)

After 12th Result  
When I See My Relatives



“Aagaye Mere Maut Ka  
Tamasha Dekhne”